



1 IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

2 APPLICANT : SIMON J. BROADLEY)
3 SERIAL NO. : 09/478,578)
4 FILED : January 6, 2000)
5 FOR: SELF-OSCILLATING VARIABLE)
6 FREQUENCY CLOSED LOOP)
7 CLASS D AMPLIFIER)

Annot
Ex. K. Nguyen
Group 2817

JSC
6/19/02

8 AMENDMENT AND REQUEST FOR RECONSIDERATION

9
10 Hon. Commissioner of
11 Patents and Trademarks,
12 P.O. Box 2327
13 Arlington, VA 22202

B. M. Nissle

14 Dear Sir:

15 This is in response to the Office Action of December 28, 2001, in the above-
16 identified application.

17
18 Kindly amend the application as follows.

19
20
21 I hereby certify that this correspondence is being
22 deposited with the United States Postal Service as
23 CERTIFIED MAIL NO. 7002 0510 0002 1154 5689
24 in an envelope addressed to: HON. COMMISSIONER OF
25 PATENTS AND TRADEMARKS, P.O. Box 2327,
26 Arlington, VA 22202 on May 28, 2002

27
28 *T. R. Nissle* May 28, 2002
TOD R. NISSLE, Reg. No. 29,241 DATE

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1 IN THE CLAIMS

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6 Delete Claims 4 to 6. Insert new Claims 7 to 9.

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10 The foregoing amendments are reflected in the attached **APPENDIX I:**
11 **Replacements, Deletions, Additions** and **APPENDIX II: Marked up Versions.**

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15 REQUEST FOR RECONSIDERATION

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18 The Examiner's thoughtful attention to this application is sincerely
19 appreciated.

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22 Reconsideration of the rejections set forth in the Office Action of December
23 28, 2001, is respectfully requested in view of the foregoing amendments and following
24 remarks.

25

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27 The Invention

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29 Applicant provides a class D amplifier. The selection of the control function is the
30 heart of an amplifier.

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32

33 Applicant believes he is first to provide a self-oscillating class D amplifier that utilizes
34 a **non-inverting feedback** control function and a non-inverting output.

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36

1 The Pullen reference (U.S. 6,107,875) discloses an amplifier in Figs. 1 and 3 that
2 utilizes an **inverting** feedback control function and an inverting output.
3
4

5 The Higashiyama et al. reference (U.S. 6,091,292) also discloses an amplifier that
6 utilizes an **inverting** feedback control function and an inverting output. Higashiyama also
7 is not self-oscillating.
8

9 Applicant's claims set forth in section (d) a "**non-inverting**, negative feedback error
10 amplifier circuit".
11

12 Consequently, Applicant respectfully submits that the invention is not anticipated
13 under 35 U.S.C. Section 102 by the references of record.
14
15

16 If the Examiner believes that there is disclosure in the Pullen or Higashiyama
17 references that indicates the control functions and output of the amplifiers are non-
18 inverting, Applicant respectfully requests that the Examiner identify such disclosure.
19 Applicant has studied these references in some detail, and it appears to Applicant that the
20 amplifiers in the references include an inverting control function and an inverting output.
21
22

23 If the Examiner finds merit in the foregoing remarks and amendments, it is
24 believed the application is in condition for allowance, and such action is earnestly solicited.
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Respectfully submitted,

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Attorney's Docket No. 995-P-3



APPENDIX I: Replacements, Deletions, Additions

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REPLACEMENTS

- I. Title: None.
- II. Specification: None.
- III. Claims: None.
- IV. Abstract: None.

DELETIONS

- I. Title: None.
- II. Specification: None.
- III. Claims
Delete Claims 4 to 6.
- IV. Abstract: None.

ADDITIONS

- I. Title: None.
- II. Specification: None
- III. Claims

Add new Claims 7 to 9. "PVM" has been amended to read "PWM".

- C
7. A self oscillating audio Class D amplifier, comprising
 - (a) a detector for receiving a PWM waveform control signal and producing a digital waveform switching signal to activate one of a pair including a positive switch and a negative switch to correct gain produced by the Class D amplifier;
 - (b) an output stage including a positive switch and a negative switch, said output stage receiving said switching signal and activating one of said switches to produce a digital driving signal;
 - (c) an output filter to receive said digital driving signal, remove switching noise and provide an amplified non-inverting audio analog output signal to drive a load;
 - (d) a non-inverting, negative feedback error amplifier circuit to
 - (i) receive said amplified analog output signal and compare said output signal to said input signal for gain-correction purposes, and
 - (ii) produce said PWM waveform control signal;said amplifier self-oscillating.
 8. A self oscillating audio Class D amplifier, comprising
 - (a) a detector for receiving a PWM waveform control signal and producing a digital waveform switching signal to activate one of a pair including a positive switch and a negative switch to correct gain produced by the Class D amplifier;
 - (b) an output stage including a positive switch and a negative switch, said output stage receiving said switching signal and activating one of said switches to produce a digital driving signal;
 - (c) an output filter to receive said digital driving signal, remove switching noise and provide an amplified non-inverting audio analog output signal to drive a load;
 - (d) a non-inverting, negative feedback error amplifier circuit to
 - (i) receive said amplified analog output signal and compare said output signal to said input signal for gain-correction purposes, and

(ii) produce said PWM waveform control signal;
the operation of said amplifier slowing as the magnitude of the error in gain increases,
said amplifier self-oscillating.

9. A self oscillating audio Class D amplifier, comprising
- (a) a variable frequency zero crossing detector for receiving a PWM waveform control signal and producing a digital waveform switching signal to activate one of a pair including a positive switch and a negative switch to correct gain produced by the Class D amplifier;
 - (b) an output stage including a positive switch and a negative switch, said output stage receiving said switching signal and activating one of said switches to produce a digital driving signal;
 - (c) an output filter to receive said digital driving signal, remove switching noise and provide an amplified non-inverting audio analog output signal to drive a load;
 - (d) a non-inverting, negative feedback, error amplifier circuit to
 - (i) receive said amplified analog output signal and compare said output signal to said input signal for gain-correction purposes, and
 - (ii) produce said PWM waveform control signal;

the operation of said amplifier slowing as the magnitude of the error in gain increases,
said amplifier self-oscillating.

IV. Abstract: None.

APPENDIX II: Marked Up Versions

Marked Up Versions

- I. Title: None.
- II. Specification: None.
- III. Claims: None.
- IV. Abstract: None.



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Box Office Actions

Assistant Commissioner
of Patents
PO Box 2327
Arlington, VA. 22202

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Date of Deposit: 05/28/02

I hereby certify that the attached

Request for Extension of Time; Extension of Time Check No. 23658; Amendment and Request for Reconsideration; and return postcard are being deposited with the United States Postal Service as "CERTIFIED MAIL -- RETURN RECEIPT REQUESTED" service under 37 CFR 1.10 on the date indicated above and is addressed to : Attn. Office Actions, Assistant Commissioner for Patents, Washington, D.C. 20231.

05/28/02

TOD R. NISSLE, Reg. No. 29,241

Date

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